CORRES CONTROL
OUTGOING LTR NO.

89 RF 1560

DIST.	LTR	ENCL
SANCHINI, D. J.	X	
BADER, C. P.		
ERFURDT, R.J.		
HEINTZ, E.R.		
HOOD, R. C.		
IDEKER, E.H.		
KINZER, J. E.		
KIRBY, W. A.		
McNETT, J.F.		
MEYERS, G.W.		
ROECKER, J.H.		
SHANNON, W.M.		
SMITH, R.E.		
WESTON, W.F.	X	
WOZNIAK, B.D.		
YOUNG, E.R.		
BETCHER, D.H.		
CARNIVAL, G.J.		
FERRERA, D.W.		
HARMAN, L.K.		
HEBERT, J.L.		
HOEY, J.B.		
HOFFMAN, R.B.		
KLAMANN, R.L.		
KRIEG, D.M.		
LOUDENBURG, G.E.		
McKINLEY, K.B.	X	
NAIMON, E.R.		
NEWBY, R.L.		
TURNER, H.L.		
VELASQUEZ, R.N.		
CORRES. CONTROL	X	X
GREENGARD, T	X	X
LAWTON, R	X	X
HOBBS, F	X	X
ARNDT, M	X	X
Lewis, B	X	X
RCRA Office	X	X
CLASSIFICATION		
UNCLASSIFIED	X	X
CONFIDENTIAL		
SECRET		

AUTH. CLASSIFIER SIG.
D Klyver
DATE 5-12-89
IN REPLY TO LTR. NO.

DEC #
LTR. APPROVALS

ORIG & TYPIST INITIALS
FPL/dar
RF-46469 (Rev. 9/88)

Rocky Flats Plant
Aerospace Operations
Rockwell International Corporation
P.O. Box 464
Golden, Colorado 80402-0464
(303) 966-7000
Contractor to U.S. Department of Energy

Rockwell International

May 9, 1989

89-RF-1560

Rush O. Inlow
Acting Area Manager
DOE, RFAO

BACKGROUND SAMPLING PLAN FOR PLUTONIUM AND AMERICIUM IN SOIL

Enclosed is a revised plan to sample remote areas for plutonium and americium to determine background soil values. This data is necessary to update information last collected by Rockwell in 1977, a date after which limited atmospheric testing of nuclear devices was conducted by several countries. The data will be used to determine whether sites adjacent to the plant have been affected by Rocky Flats Plant operations and to comply with background sampling requirements of the Environmental Restoration (ER) program.

You will note that three soil sampling protocols will be used. Historically, several soil sampling strategies have been used to sample soils for plutonium and no common method has been chosen. In order to avoid resampling these remote sites later, the Colorado Department of Health, Rocky Flats Plant, and proposed EPA methods will all be used at this time.

A meeting was held on Tuesday, May 2 at the EPA offices to present the sampling design and locations to EPA and CDH. This version includes recommendations made at that meeting.

If you have any questions, please call Rick Lawton at extension 7079 or Tom Greengard at extension 7664.

K. B. McKinley
RCRA/CERCLA Program

Orig. and 1 cc - R. O. Inlow
Enc.

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

Robert L. Duprey, Director
Hazardous Waste Management Division
U.S. Environmental Protection Agency, Region VIII
999 18th St. Suite 500, 8-WM-C
Denver, Colorado 80202-2405

David C. Shelton, Director
Hazardous Materials & Waste Management Division
Colorado Department of Health
4210 East 11th Avenue
Denver, Colorado 80220

Gentlemen:

Enclosed please find a plan to sample soils at eight remote locations to determine background levels of plutonium and americium. This sampling is being conducted in part to satisfy sampling requirements of the Rocky Flats Plant Environmental Restoration Program (ER) for background characterization.

A meeting was held Tuesday, May 2 at the EPA offices to discuss this plan with the members of your staffs plus Al Hazle of the Colorado Department of Health Radiation Protection Division and Milt Lammering of EPA's Radiation Program. The enclosed plan incorporates EPA and CDH comments from that meeting.

If you have any questions, please call C. C. Jierree of my staff at 966-4888.

Sincerely,

Rush O. Inlow
Acting Area Manager

Enclosure

cc:
N. L. Miullo, EPA
P. Corbetta, CDH
T. C. Greengard, Rockwell
K. B. McKinley, Rockwell

SAMPLING PLAN
BACKGROUND SOIL PLUTONIUM AND AMERICIUM

PURPOSE

Background soil plutonium and americium data can be used for several purposes. It can be used to assess whether or not adjacent sites have been contaminated by Rocky Flats Plant activities. This data will also satisfy background data collection requirements for activities being conducted under the Environmental Restoration (ER) program at the plant.

METHODS

Samples will be collected by the CDH, RFP, and proposed EPA soil sampling protocols. At each location a three meter by three meter square will be marked on the ground and the corners and center marked by stakes. The plot will be oriented with the cardinal directions (Figure 1). At each stake a 10 cm. x 10 cm. x 5 cm. sample, and a 10 cm. x 10 cm. x 1 cm. sample will be taken. Within the 3 meter by 3 meter plot, in each of the 4 quadrants, a 1 meter by 1 meter frame will be placed. At the corners and center of the 1 meter frame, a 2 inch by 2 1/8 inch by 1/8 inch sample will be taken. For all methods, vegetation will be clipped at ground level and all material within the individual sample will be collected. The subsamples for each method will be composited separately into containers.

LOCATIONS

Eight remote locations will be sampled. These eight locations are a combination of the sites used by the Colorado Department of Health Radiation Control Division and those used by Rockwell International in the extensive soil characterization conducted for the lawsuit filed by landowners adjacent to the Rocky Flats Plant. These locations are Loveland, Livermore, Crook, Burlington, Limon, Springfield, Walsenburg, and Penrose, all in Colorado (Figure 2). All samples will be collected from large open, topographically stable areas that have not been obviously disturbed. Aggradational and erosional areas will be avoided. Photographs will be taken to document the locations.

ANALYSIS

All analyses will be by double acid dissolution of the sample, plancheting, and alpha spectral analysis with a minimum count time of 8 hours. The entire submitted samples are to be prepared by drying, mixing and grinding and the 5 gram analytical aliquot is to be a proper split of the entire sample. The analysis is to be done

on the less than 2 mm fraction of the soil, but rock and debris masses are to be reported. An independent offsite laboratory will be contracted to perform the analysis of the EPA and CDH protocol samples, and the HS&E laboratory at RFP will do the analysis on the 5 cm. deep sample for consistency with past sampling and analysis. Every fourth sample is to be run in duplicate, two reagent blanks and two soil blanks, and two standards run during the analysis.

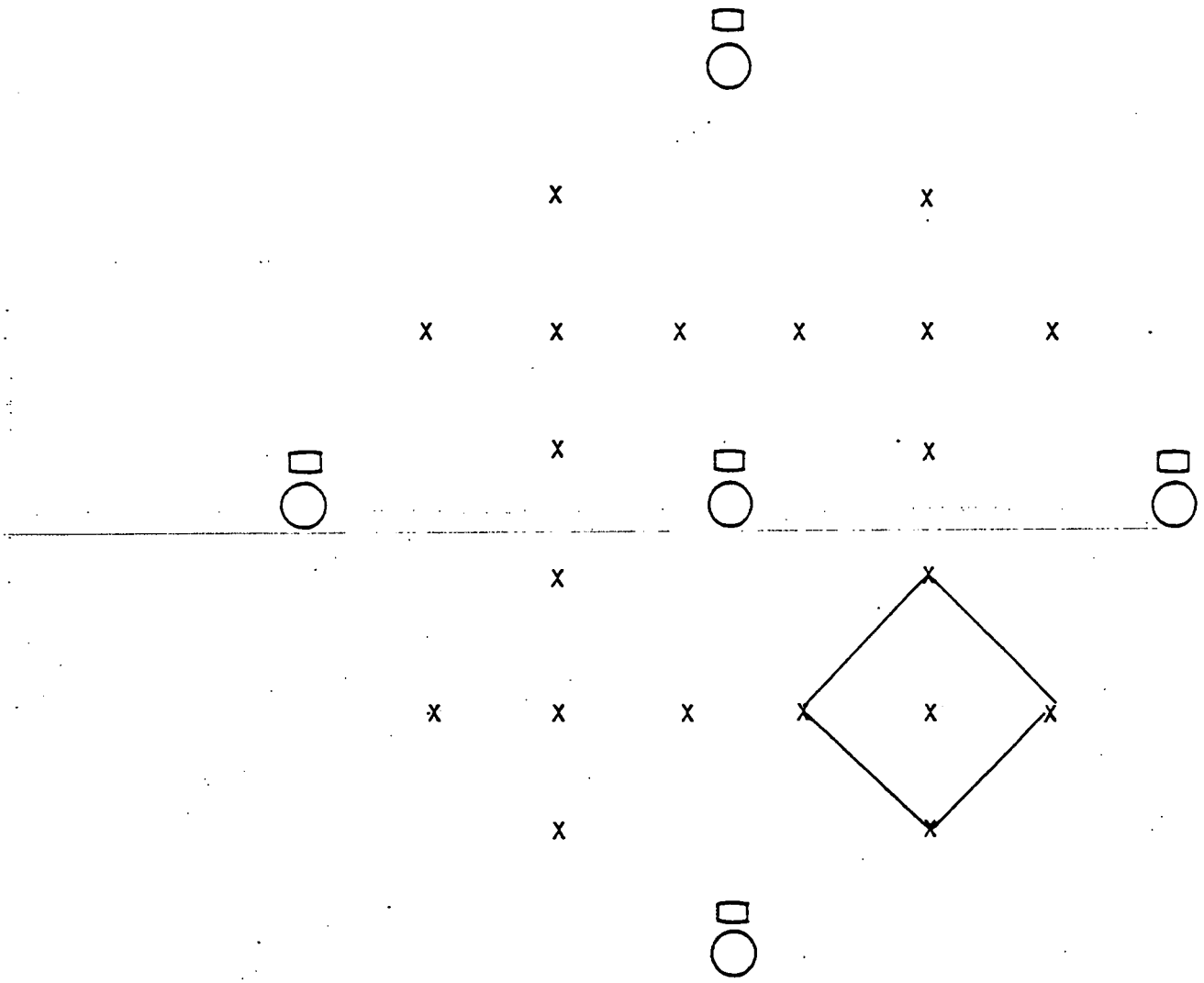
TIMETABLE

Weather permitting, sampling will occur the week of May 15, 1989. The sampling will take approximately 5 days due to the scattering of the points. Reporting sample analysis will take 60 to 90 days.

REPORTING

A detailed report will be completed upon receipt of the data. The report will include all data collected including QA/QC information, minimum detectable activities and a comparison to previously collected data. At the request of CDH and EPA, the report will also include a discussion on the meteorological conditions at the sites, if available, and a summary discussion of other regional data on fallout available from other sources.

FIGURE 1
SAMPLE DESIGN

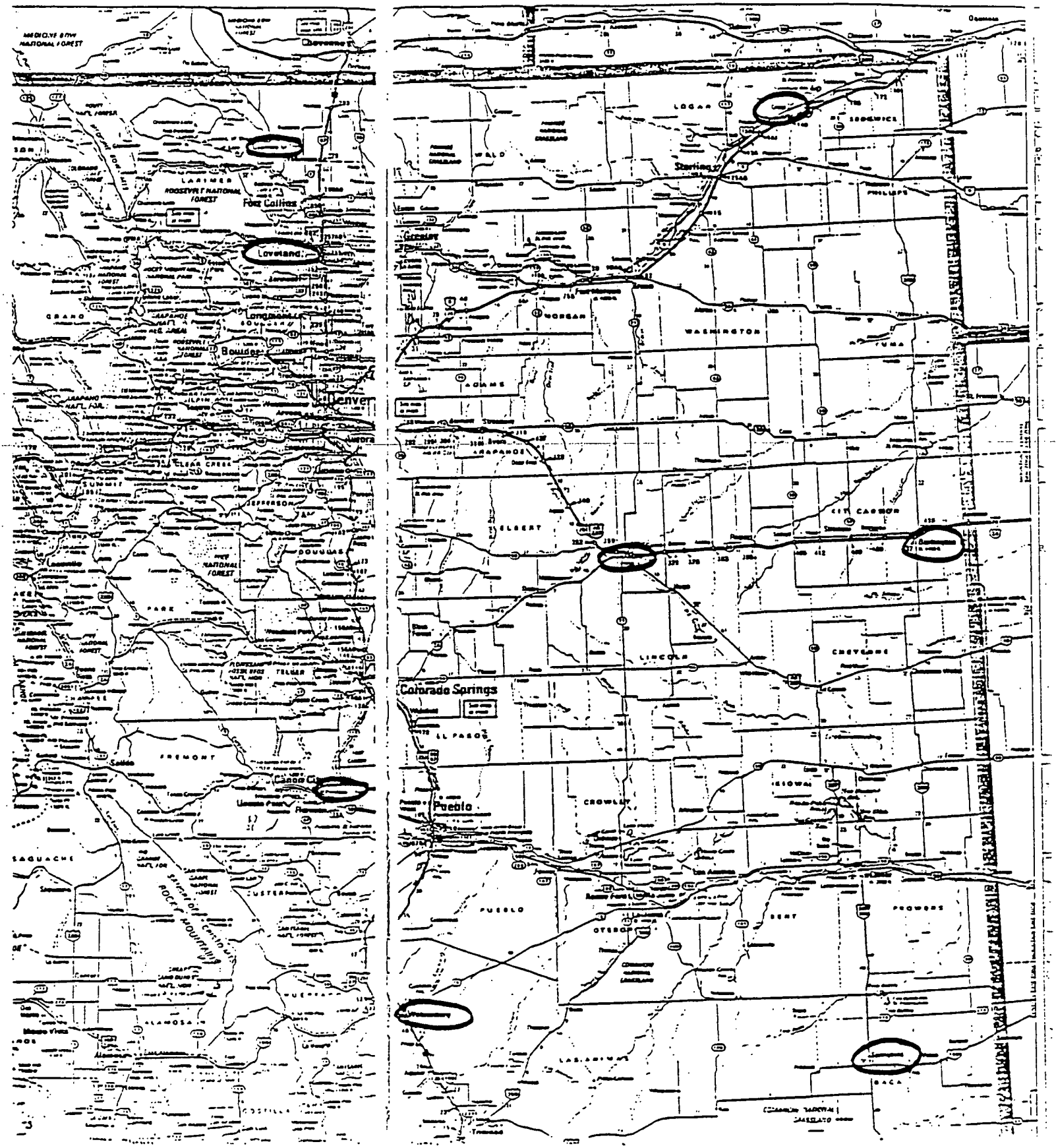


SCALE 1 inch = 1 meter

LEGEND

- ROCKWELL SAMPLE
- X CDH SAMPLE
- EPA SAMPLE

FIGURE 2



SAMPLING LOCATIONS